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ABSTRACT

This paper explains Howard Gardner's Theory of Multiple Intelligences (MI) and discusses questions raised about MI theory in regard to validity, assessment, and implications for instructional activities. MI theory asserts that human cognitive competence is best described in terms of a set of abilities, talents, and mental skills that each child develops at different rates based on biological and cultural influences. These "intelligences" include music, bodily-kinesthetic, logical-mathematical, linguistic, spatial, interpersonal, and intrapersonal intelligences. The paper addresses the development of a curriculum to accommodate or modify one or more intelligences and the assessment of MI. (Contains 33 references.) (MDM)

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ASSESSING MULTIPLE INTELLIGENCES

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Introduction

When considering the theme of this conference, Educational Assessment, I saw this as an opportunity to present an alternate approach to conventional assessment of the young learner's intellectual development. Howard Gardner's Theory of Multiple Intelligences seemed to be an appropriate vehicle to demonstrate to you an alternate means of assessing the development of the young learner. He developed this theory as a developmental psychologist at the Harvard University. Implementing this theory into the curriculum and assessing student achievement is the central concern of this presentation.

QUESTIONS

In order to examine this theory, questions have to be posed:

What are these multiple intelligences?

How do we apply this theory into practical application in our curriculum and instructional programs?

How do we assess this diversity of intelligences?

PURPOSE

The specific purpose of this presentation will be to:

Review with you Gardner's Theory of Multiple Intelligences.

Speculate with you about implementing this theory into the classroom. Training in TaekwonDo Plus will be the vehicle for demonstrating the application of the Bodily/Kinesthetic and the Intrapersonnel Intelligences. Discuss the implications of this theory.

Explain the concept of authentic learning using the portfolio method.

Define and institute authentic assessment: a qualitative consideration.

HYPOTHESIS

The young learners have intellectual capacities that are not completely accommodated in existing educational programs and assessment procedures.

ASSUMPTIONS

Based on the human condition of diversity students have an innate and basic need to learn.

All cultures have the capacity to some degree, in some unique way, to provide the opportunity for the development of their youth's intelligence.

Parents instinctively will nurture their youth's physical and intellectual development.

The beliefs, attitudes, and value system of a culture demand the fostering of the conditions eminent to its youths, development, with a concomitment to those things that they cherish.

Assessment becomes essential for both the learner and the educator, if understanding of our efforts to develop the young learner are to be achieved.

THE ARGUMENT

First, what do the cultural anthropologists say about the intelligence of humanity? They say that intelligence can be studied by considering the cognitive developmental process, the biological basis, the child-rearing influences, the cultural opportunities, the IQ tests, the effects of economic deprivation on minorities, the system of moral judgments, the differences in races, and so on.

I would like to deal exclusively with Gardener's work based on an investigation of human potential which I felt was in keeping with the theme of this conference. His work at Harvard seemed particularly important to viewing alternate assessment strategies. He deals with human cognitive capacities among human diversity and the implications for educational policies and practices throughout the educational enterprise.

What is the idea of multiple intelligence that Gardner refers to?

It is a new theory of human intellectual competencies. Gardner's theory challenges the traditional views of intelligence that we have been taught to believe from our graduate training in learning theories or have been subjected to by our educational systems. His theory is not <u>de nova</u>. Gall, Wundt, James, Piaget, Binet, and others all worked on understanding human intelligence. Vygotsky gave the world of scholars a strong signal about the usefulness of the IQ tests when he said, "IQ tests fail to yield any indication of an individual's zone of potential development."

What, then, is Gardener's viewpoint of intelligence?

Gardener and his confreres believe that human cognitive competence is better described in terms of a set of abilities, talents, or mental skills, which are called "intelligences." All normal youth possess each of these skills to some extent; but by virtue of genetic development and cultural influence, children differ in their profile of skills and combinations. Gardner also believes that his theory of intelligence is more vertical than the traditional linear theories and more humane as it includes more of our youth and it more closely resembles human intellectual behavior

What constitutes this M/I theory?

M/I theory is framed in light of the biological origins of each mental faculty. Gardner considered those skills that are universal to all members of the human species. Further; biological and cultural influences were combined when studying a mental activity He uses the example of language as a global skill, "faculty," or "intelligence"; that is, language may manifest itself in one culture in the form of writing, as oratory in another, and as a form of cryptology in a third. Another global capacity is spatial ability. In one society, it may manifest itself in navigation, hunting in a second, and geometric reasoning in a third, or sculpture in a fourth.

Gardener further points out that the aim of identifying intelligences which are rooted in biology and valued by cultures is to discover an "intelligence." Several sources from studies of gifted to cross-cultural studies of cognition have been examined. A criterion for intelligence is discussed at length in Gardner's Frames of Mind (1983). Each intelligence has an identifiable core or set of operations.

Let me briefly report to you how Gardner explains his seven "intelligences," based on the information that I have reported to you thus far.

MUSIC

Music is an intelligence; that is, certain parts of the brain play an important role in the perception and the production of music. These areas of the brain are located in the right hemisphere. A certain set of mental skills comes into play in the child, if talented, because of a biological underpinning and a proclivity for a particular intelligence--in this case, music. Supporting this definition is evidence that certain types of brain damage, such as amusia, constitute an isolated loss of musical intelligence.

BODILY-KINESTHETIC

Bodily-kinesthetic intelligence refers to the ability to use the whole body or various limbs. Ballet dancers, athletes, and instrumentalists are examples of this intelligence. They have a skill in the use of the motor cortex. If this person were to suffer apraxia, the development of this intelligence would be seriously impaired. Again, the theory @f separate intelligences is supported with a biological basis. I would like to expand on this intelligence later in our session using the martial arts as a vehicle for the development of that intelligence.

LOGICAL-MATHEMATICAL

Logical-mathematical intelligence deals with an intelligence that problem solves. I won't go into the details, as we are all familiar with Piaget's work and others who historically and traditionally define this frame of intelligence. This line of thinking is reproduced into standardized instruments such as I Q tests.

LINGUISTIC

Linguistic intelligence, another global denominator of our youth, is reproduced into a symbol system and, like logical-mathematical intelligence, is historically and traditionally defined and treated in the same way, again, the I Q test.

SPATIAL

Spatial intelligence, deriving from the right hemisphere of the brain, requires a set of skills to solve space-related problems. A person with damage to the right hemisphere has difficulty in solving space-related problems--another supporting point that there are domains of intelligence within the brain and implications for us, as curriculum and instructional workers, to consider.

INTERPERSONAL

Interpersonal intelligence builds upon a core capacity to notice distinctions among others--moods, temperaments, motivations, and so forth. The person with an intelligence in this area may read the intentions and the desires of others where others are oblivious. This intelligence manifests itself in an advanced form among the clergy, politicians, teachers, and some parents who are being raised by precocious teenagers. **TaeKwonDo Plus** will be the vehicle for demonstrating this intelligence.

INTRAPERSONAL

Intrapersonal intelligence is the ability to access one's feelings and emotions and a capacity to discriminate among these feelings and emotions in order to understand one's own behavior. Both the inter- and intrapersonal faculties pass the test of being an intelligence. They both feature problem-solving endeavors. Both are manifested in a symbol system. Interpersonal intelligence finds expression in public ritual whereas intrapersonal intelligence is symbolized in the internal world of dreams. **TaeKwonDo Plus** training will be used again to demonstrate the development of this intelligence.

SUMMARY OF GARDNER'S MODEL

In summary, evidence from brain research, developmental and evolutionary investigations, and cross-cultural comparisons brought to bear in Gardener's search for relevant human intelligences. An intelligence was included only if reasonable evidence to support its membership was found across these diverse fields. Gardener believes that these multiple human faculties, "the intelligences," are to a significant extent independent of one another. Research on the brain- damaged adults continually supports the position that particular faculties can be lost while others are spared. This independence of the intelligence implies that a high level of ability in one intelligence does not require a similarly high level in another intelligence.

One radical implication of the M/I theory is that such capacities are better thought of in a vertical manner. Traditional views place human abilities in a horizontal fashion rather than a general faculty called memory.

Until now, we have supported the fiction that our youth depend on the blooming of a single intelligence. According to the cultural anthropologist, nearly every cultural role of any degree of sophistication requires a combination of intelligences. For example, to become a successful portrait artist requires a combination of intelligences with one being the dominant intelligence, in this case, spatial. For those of us who are evaluators, it is paramount to assess the particular combination of skills that may earmark an individual for a certain vocation.

APPLICATION

The theory of M/I faces two distinct directions: the world of educational psychology and the other world that you and I work in. To the educational psychologist, it presents a theoretical analysis in an effort to explain the variety of human accomplishments. To

the world of evaluation, it provides a framework whereby we may better cope with the melange of individual differences.

ASSESSING MULTIPLE INTELLIGENCES

Let me report to you a critique of the theory.

> Students can be differentiated on the extent to which they are "at promise" in one or more of the intelligences. The martial arts using specifically **TaeKwonDo Plus** training will provide the example for such assessment.
>
> Standardized instruments can provide a rough-and-ready measure of intellectual potential and achievement in the linguistic and logical-mathematical domains but are irrelevant to the other intellectual domains. The whole notion of assessing heuristic or interpersonal intelligences through short answer questions is absurd. There is an urgent need for modes of assessment which are "intelligence fair."
>
> There needs to be a shift from standardized tests to an emphasis on projects as a means of determining student achievement. The project will provide the student an opportunity to develop the dominant intelligence. Projects can be identified for these intellectual domains.
>
> Schools need to attend to all the intelligences. We can provide our youth with opportunities to develop their intelligences whether at school, home, or in the community. We need to take heed at the postsecondary level as well. A collection of projects in a portfolio for every student's dossier would have equivalent predictive value as the narrowly framed standardized test. Such projects may be more motivating and educational.
>
> I don't think that I am suggesting an Utopian curricular activity. I favor these shifts in curriculum and instruction because they follow from the newest research in the cognitive and neural sciences. Based on the M/I theory, our best chance to solve global problems is to foster among our global youth the development of a variety of intelligences.

What Are the Issues for Educational Assessment?

Intelligences (i.e., music, body-kinesthetic, etc.) are what most call talents or gifts. Why confuse the issue by renaming them "intelligences"?

The word intelligences was used to tie-in with the cognitive psychologists who feel that logical reasoning and linguistics are

different information processing activities than solving a problem in music theory.

Is M/I Really a "Theory"?

M/I doesn't consider all data since this would be unsurmountable. The theory is a synthesis of the independent offerings of neurology, special populations, development, psychometrics, anthropology, evolution, and so on--these fields do support that the theory puts it on the right track. Controlled experiments could either confirm or disconfirm M/I; for example, a test of the independence of these intelligences by testing the universality of intelligences across cultures among our global youth or a test of the stability of an intelligence. The theory is aimed at discovering a small set of human faculties that are biologically valid and give assessment workers something useful to undergird educational activities.

Assessing The Effects of the Theory?

We need to work together on conceptualizing the application of this theory to our task as evaluators; cluster our efforts in survey studies, from our survey studies, identify variables to do correlational studies, and last, design experimental studies to control the examination of the variables dealt with in the correlational studies.

How Do We Measure M/I Intelligence?

We need to develop reliable tests to measure these intelligences. We cannot rely on short answers but instead must develop materials for each of these domains. Tests of spatial intelligence, such as we develop in the architect, would examine spatial relationships and the student's ability to analyze construction problems, the emphasis primarily @n space being supported by logical-mathematical reasoning. There is, I might add, a concern over separating the "g" (general intelligence) out when testing for a specific M/I intelligence. If the attempt to assess intellectual propensities in our global youth is successful, we can deal with "g" much more articulately.

What Are the Curriculum and Instructional Implications for Classroom Activities?

We need to determine the determine what intelligence is dominant and performs as the executive intelligence. Then develop a portfolio of activities relative to their unique intellectual capacities. In order to accomplish the former , we need resources and materials to enhance a particular intelligence.

Why Is Moral or Spiritual Intelligence Not Considered?

Walters and Gardener see it as part of inter-intra- personal intelligence with a cultural value component added. Intelligences deal with abilities which grow out of a culture rather than religious values which can be valued one way or another. I believe that one of the greatest intelligences is the gift of prophecy. I am sure that I could muster considerable support from those of you who are futurists.

Can We Develop a Curriculum to Accommodate or Modify One or More Intelligences?

Yes! Some intelligences will have a floor and ceiling over others. However, barring brain damage, an individual can achieve in a domain other than his or her executive intelligence and achieve significant results. The Suzuki method and other "hot house" techniques have proven this. However, materials and instructional methods will be crucial. Plus, the surrounding culture will play a prepotent role in determine the extent to which an individual's intellectual potential is realized.

ASSESSING MULTIPLE INTELLIGENCES

1. Identifying the Intelligences.
2. Assessment Paradigms.
3. Student Behavior Log.
4. Student Behavior Log Scoring.
5. Criteria of Authentic Assessment.
6. Examination Structure.
7. Academic Design.
8. Grading and Scoring.
9. A Model for Metacognition Process-folios.
10. Stages of Learning Transfer.

Wherever possible the **TaeKwonDo Plus** training will be used as the vehicle for operationalizing the points listed above.

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